

Salmon Smart:

A Guide to Help People Help Salmon



Your purchase of fishing equipment
and motor boat fuel supports boating
access and Sport Fish Restoration.



*Washington
Department of*
**FISH and
WILDLIFE**

August 2000

Acknowledgments

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Salmon Smart is an evolving document. Contact information is subject to change. To update a listing, please send revisions by e-mail to: longbkl@dfw.wa.gov

Contents

Introduction	1
Why What You Do Matters	2
What Is A Healthy Watershed?	3
What Is A Healthy Stream?	4
The Bottom Line Is Water	5
How You Can Help	7
Changing Your Behavior and Your Life Style	7
Air Stewardship	7
Water Stewardship	7
Land Stewardship	9
Urban Dwellers	9
Rural Residents	9
Farmers and Ranchers	9
Foresters	10
Shoreline/Streamside Property Owners	10
Recreational Stewardship	10
Water Sport Enthusiasts	10
Campers, Hikers, and Trailriders	10
Getting Actively Involved	11
WDFW Regional Fisheries Enhancement Groups	11
Salmon Recovery Lead Entities	12
WDFW Watershed Stewardship Team	14
Stream Teams	15
Local Public Utility or Conservation Districts	15
WSU Cooperative Extension	15
NatureMapping	15
Washington State Parks	15
Forest Stewardship Program	16
Watch Over Washington	16
Adopt-A-Highway	16
Salmon Web	16
Puget Sound Water Quality Action Team	16
People for Salmon	16
Washington Sea Grant	16

Contents continued

Creating Your Own Volunteer Cooperative Project	17
Do Some Preliminary Research	17
The Watershed Recovery Inventory Project	17
SASSI, SaSI, and SSHIAP	17
Ecosystems Diagnosis and Treatment (EDT)	18
StreamNet	18
WDFW Volunteer Cooperative Projects	18
Permitting	19
Project Planning Checklist	21
Map of WRIAs	22
List of WRIAs with map	23
Internet Resources	24
General Contact List	25
Salmon-Friendly Recipes for Daily Life	26

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Introduction

Thank you for your interest in salmon recovery. We have met the enemy, and, in most cases, he is us. While there certainly are contributing natural causes, as consumers, business people, and communities, human pressures have unquestionably degraded water quality and aquatic habitat.

If you use electricity from the Northwest power grid; if your taste buds tingle at the prospect of fresh Washington fruit and produce; if you drink milk or nibble on cheese; if Arkansas fryers come from too far away and you like your beef home-grown; if you drink tap water, beer from a local micro-brewery, or wine from a Washington vineyard, you have a vested interest in Washington water issues and salmon recovery efforts. You don't have to be a fisherman. You don't even need to like eating fish.

There are a wide variety of steps you can take to help repair the damage. Whether you choose to change your personal habits, adjust your lifestyle, or become actively involved in salmon stream and habitat restoration, your participation **will** make a difference.

This manual is intended to show you how you can help. It will identify behavior choices you can make to improve the environment. If you are ready for a more active role, it will help you find the resources and organizations currently involved in recovery efforts. If you would like to propose a new project, it will also provide a checklist of questions to consider and some basic information regarding available grant funding.

Complex environmental issues do not lend themselves to quick fixes. It will take the continuous, hands-on efforts of people throughout the state, working on local rivers and streams and adjacent uplands to preserve and protect salmon habitat and ensure sustainable salmon runs. Salmon stewardship is long-term. Your commitment to salmon habitat restoration is an investment in our children's future.

Why What You Do Matters

For generations of Americans, “more is better” has been an accepted truism. From land hunger to industrial and commercial expansion to consumerism, we spread out across our land building more, better, and faster. We carved roads, dammed rivers, and created cities. Our environment supplied raw materials in a seemingly endless supply.

Things will change for the next generation. If current trends continue, Washington’s population will double in the next fifty years. More people will mean greater demands for food, housing, energy, transportation, and waste disposal; more pressure on air and water quality; and, perhaps, final, irreparable damage to the natural environment which supported our growth. “More” will be impossible to sustain.

What happens when wetlands, forests, and grasslands are converted to housing developments, shopping malls, and industrial parks? What happens when the chemicals used to increase agricultural yields leach into the water table? What happens when there is insufficient water to fulfill the needs of all users? Where do fish and wildlife go when their habitat is polluted, flooded by dams, drained, or paved over? Whole species diminish, some disappear.

Habitat - the wetlands, estuaries, forests, grasslands, rivers and streams where fish and wildlife make their homes- is altered in this state at a rate of between 30,000 and 80,000 acres a year. Animals cannot survive without habitat that provides food, shelter, and suitable reproductive conditions. Because habitat has a limited “carrying capacity” for fish and wildlife, species already weakened by numerous habitat losses may be more susceptible to disease, predation, pollution, and invasive, non-native species. The federal government has listed more than 30 fish and wildlife species in Washington as threatened or endangered. More are expected.

Salmon are an integral part of the ecosystem in which we live. They are a “keystone species” of the Pacific Northwest. Their complex ecological interactions influence and are impacted by the broader environment. They play a pivotal role in shaping and regulating the abundance and behavior of many other species. Healthy salmon runs mean healthy water resources and healthy people.

Local watershed stewardship, habitat preservation, and restoration projects are critical to salmon survival. While government agencies can seek to manage growth and its cumulative effects, **the everyday choices and efforts of individuals, property owners, residents, and consumers will determine the health of our natural environment.**

What Is A Healthy Watershed?

The character of a watershed depends on how it handles water and sediment. We call a watershed healthy or well-functioning when ...

- Rainfall sinks into the soil in the uplands and is released slowly through subsurface flow into springs, seeps, streams, or groundwater.
- Native plants take up the water and use it for growth and reproduction. Their roots help to hold the soil in place.
- Riparian vegetation is thick and healthy.
- The streams run clear and cool and summer flows are not restricted.
- The flood plains slow the velocity of the occasional floods.
- Native fish and wildlife populations are healthy, productive, and diverse.
- Stream channels are stable, in dynamic equilibrium with surroundings, with adequate large woody debris.

Riparian vegetation performs the following functions:

- Stabilizes banks.
- Helps filter sediments from upland sources.
- Provides cover and food (both plant material and insects) for fish.
- Provides cover and food for wildlife.
- Provides migration corridors for wildlife.
- Provides breeding, resting, nesting, and foraging areas for wildlife and insects.
- Provides a source of large or coarse woody debris.
- Provides shade and cover to moderate both water and air temperature (cooler in summer, warmer in winter).

In contrast, in an unhealthy or poorly functioning watershed:

- Soils are compacted and stripped of vegetation.
- Water runs off quickly, instead of being absorbed and released slowly.
- Rainfall washes sediments down into the stream, choking spawning gravels.
- During storms, the stream can gain velocity and force, destroying streamside vegetation, carving deep banks, flushing spawning gravel, scouring down to bedrock, and damaging or destroying human property and life.
- Streamside vegetation suffers from lack of water between rains; streams run dry in the summer.
- Summer stream temperatures are elevated.
- Native fish and wildlife populations are reduced.

What Is A Healthy Stream?

Every stream carries the story of the entire drainage basin. Because conditions throughout a basin change with seasonal cycles, climatic cycles, and human activities, the streams, too, change. Flowing water is a dynamic system.

The daily and seasonal variations in flow and the ability of the watershed to support year-round flow are of great importance to fish and wildlife. In a deteriorated watershed, rapid runoff may make the peak flows higher and the low flows lower than in a healthy watershed. For salmon, this could mean the difference between survival and death from desiccation of the eggs, high water temperatures, lack of food for juveniles, or lack of water for fish passage.

The components of a healthy stream are:

- Well-vegetated uplands, dominated by diverse native plants showing vigorous growth.
- Active flood plain connected to the stream. (The flood plain is the land alongside the stream where high water flows.)
- A channel with natural stability. The channel has developed a stable pattern or profile so that channel features such as pools, riffles, and undercut banks are maintained. Fish use each of these features in different ways - pools for refuge, especially from elevated water temperatures; riffles for feeding and spawning; undercut banks for refuge from predators and high velocity water.
- A groundwater supply available to recharge the river during low flows.
- Adequate canopy (shade) and healthy native riparian vegetation that has evolved into mature communities, with abundant and diverse plant life which, in turn, supports abundant and diverse wildlife.
- High quality water, which supports desirable macroinvertebrates, fish, and birds.

The Bottom Line Is Water

The Value of Instream Flow

Many people feel that water flowing by without being put to use is wasted. Western water law, which got its start in the gold rush days in California, is based on that philosophy. Human uses of water, such as irrigation, mining, manufacturing, or drinking water, are called “beneficial uses,” and legal rights to use water are based on beneficial use. Until recently, leaving water in a stream for fish, wildlife, or recreation was not considered beneficial use.

From a biological and hydrological perspective, water left in a stream does important work:

- It recharges and maintains the volume of groundwater in storage.
- It protects water quality. Sufficient water in the stream helps to control water temperature, prevent excessive growth of algae or bacteria, dilute toxic chemicals, and provide nutrients.
- It maintains the channel and flood plain.
- It provides fish habitat.
- It provides habitat for aquatic insects and other organisms that are, in turn, food for fish, birds, and other wildlife.
- It supports streamside vegetation.

In addition to these biological benefits, of course, water in the stream has direct human uses, such as hydropower, navigation, and recreation.

Water Rights

Throughout the West, the waters of a state are publicly owned. A state grants permission to use the water (a water right), but the holder of the right does not own the water. The water right stays with the property when the land is sold. A water right specifies a point of diversion, a place of use, a rate of withdrawal, a total volume of water to be used, and a season for the use.

Today, Western water is over-appropriated. States routinely grant water rights for more water than is actually in the stream. The water is diverted for irrigation or municipal use, run through turbines, or stored in reservoirs. Some of the water is lost through evaporation, leaky pipes or canals, or the draining or filling of natural water storage areas. About 80% of the water that is withdrawn from streams or groundwater in the West is used for irrigation although residential, municipal, and industrial users are beginning to compete for a larger share.

How Much Water Do Salmon Need?

The amount of water in the stream needed by fish, particularly salmon, is not a constant; it varies depending on the species, season and stage of life cycle. Adult salmon need enough water to get past rocks, riffles, and other obstacles. They need enough water for spawning. The eggs and tiny sac fry will not survive without adequate streamflow to wash through the gravel and provide oxygen. The developing juveniles need enough water for feeding and refuge until they are ready to head downstream. During migration, they need higher flows to hurry them along to the sea.

Salmon respond best to the natural “streamflow regime,” which has peaks from fall rains or spring snowmelt and valleys from summer drought. They take many cues for feeding, migration, and spawning from the timing and quantity of water.

Water temperature is another important variable for fish. Temperature generally varies inversely with flow; higher flow means colder water, especially for a stream that is also used for irrigation. Salmon need cold water; they need temperatures between 39 degrees and 49 degrees F for spawning, and between 45 degrees and 58 degrees F for rearing. Water temperatures between 60 degrees and 73 degrees F may not kill the fish directly, but do make them more vulnerable to stress and disease. Sustained temperatures above 73 degrees F can cause death. Both juvenile and adult salmon take refuge in pools and areas of colder groundwater infiltration to survive summer water temperatures.

Calculating exactly how much water fish need is not easy. It is safe to say that the more closely a river or stream approaches its historical natural flow, and particularly its natural flow regime or cycle, the better it is for the fish which have evolved and adapted to those conditions. Most Western rivers today have been greatly altered by human activities such as dams, irrigation diversions, development in the flood plain, grazing, logging, and removal of beaver. In general, these changes result in warmer temperatures, higher highs and lower lows, and they decrease the diversity of habitats possible for salmon.

How You Can Help

Changing Your Behavior and Your Life Style

There are cumulative effects from all the small things that people do that have a significant impact on salmon. Old habits, acquired in times of plenty, no longer complement our heightened ecological awareness. Community values are evolving to recognize the benefits of living more lightly in our environment. The “reduce, re-use, and recycle” movement has mushroomed to create collection centers in most areas and booming markets for recycled products. Old “groomed and manicured” landscaping practices are giving way to more natural vistas.

You can help by: using less water; reducing your dependence on fossil fuels and electricity ; driving fewer miles; insulating your living space; using energy-efficient appliances; reducing your lawn area and landscaping with native plants; gardening with “organics” (try watering your plants with recycled water from fish tanks!); composting; fixing leaky faucets; and generally living more simply. Reduce, re-use, recycle.

Air Stewardship

Did you know that you can live without food for three weeks, without water for three days, but without air for only three minutes? Simple human activities like driving a car, mowing your lawn, burning wood, and using aerosol deodorants, hair spray, or air fresheners produce air pollution. One hour of mowing your lawn with a gas-powered mower pollutes as much as 40 late-model cars. Concentrations of carbon dioxide and carbon monoxide accumulate in the atmosphere creating a “greenhouse effect” which could cause major changes in forest and crop patterns, higher sea levels, and other environmental impacts. Dust particles and chemical specks pollute the air and can contaminate soils and water, creating health hazards for all living things.

You can help by: reducing your driving (25 miles of car travel = 1 pound of pollution in the air!); using muscle power for yard work; eliminating your use of products in aerosol cans; using low solvent or solvent-free paint; and burning fewer fires.

Water Stewardship

Water Quantity

Salmon need clear, clean, cold, highly-oxygenated water to survive. Unfortunately, during the most critical periods of their life cycle, salmon must compete with numerous human enterprises for the limited available supply.

You can help by: being water wise, not wasteful; using water-efficient appliances; taking short showers; and learning to love a dry lawn.

Culverts and Fish Passage

Many human-made objects and structures have been placed in and along streams to remove water, divert the flow, and to dispose of storm water. They may significantly impact streams by reducing or altering flows. When we build roads and buildings over and near streams, streams end up underground, with their water channeled through culverts. When under-sized or incorrectly designed, culverts can cause scouring of the stream channel and become major in-stream barriers to fish passage.

You can help by: inventorying barriers to fish passage and participating in stream restoration/culvert replacement projects.

Non-point Pollution

Pollution is poison. The most serious type of freshwater pollution in the Northwest is “non-point source pollution”- pollution from sources too numerous and small to be individually identified. It is pollution generated by the activities of daily life: household chemicals and detergents, oil from cars, fertilizers, and pet wastes. It is pollution all of us can reduce by changing our behavior.

You can help by: recognizing and replacing your bad habits with salmon-friendly behaviors.

Motor Oil

It takes just one quart of oil to contaminate 250,000 gallons of drinking water. In Washington, 2.25 million gallons of used motor oil are dumped into storm drains every year. That’s equivalent to a major oil spill. And, if your “faithful transportation” leaks oil, the stain on your driveway will find its way into the drain with the next big rain, too.

You can help by: recapturing and recycling every drop of used motor oil and fixing all oil leaks.

Household Chemicals and Detergents

Most commercial household cleansers are toxic. When you scour your kitchen sink or scrub the bathroom bowl, the water you rinse away likely contains chemicals poisonous to salmon. Whether you are connected to a municipal sewer system or you have an on-site septic system, that runoff eventually reaches a natural body of water.

In addition to toxic chemicals contained in household cleaning products, many detergents contain phosphorous. While not toxic itself, phosphorous fertilizes the growth of undesirable algae in lakes and streams which then “bloom” and die, depleting the aquatic oxygen supply. Fish suffocate. Even a phosphate-free soap can make fish sick.

You can help by: using less toxic household cleaners and keeping soap out of storm drains.

Pesticides and Fertilizers

Pesticides, weed killers, and diazinon products are poisonous to people and salmon. A recent U.S. Environmental Protection Agency study found 23 commonly used pesticides (like diazinon

and 2,4-D) in Washington's urban streams. Around Puget Sound, urban dwellers buy more than one million pounds of pesticides a year - three times more than the amount used by local farmers.

You can help by: using organic, slow release fertilizers that are less likely to leach into streams, overseeding with an environmentally friendly mix that introduces nitrogen-fixing, broadleaf plants, composting your yard waste, and practicing "natural" lawn care.

Land Stewardship

Salmon are directly affected by land use practices. In a very real way, they grow on trees and in the fields next to streams. Where your home and land is located will determine the fish-friendly actions you can take. Here are a few suggestions.

Urban Dwellers

- avoid new development in flood plains and wetlands.
- require catch basins, natural filtration systems, grassy buffer strips, and other methods to manage runoff from paved areas.
- preserve remaining stream banks with native plants to stop erosion and improve streamside habitat.
- pay particular attention to keeping oil, paint, household chemicals, and pesticides out of storm water and sewage treatment systems.
- identify and alter existing culverts which impede fish passage.
- use organic, slow-release fertilizers on lawns.
- water sparingly and not during the warmest hours of the day.
- prevent muddy water runoff from gardens and construction sites.
- limit the impervious surface areas around your home.
- pick up pet wastes and dispose of them properly.

Rural Residents

- protect the purity of your groundwater, test your well water at least once a year.
- if you have a stream, maintain a healthy, undisturbed riparian zone.
- preserve any wetlands you are lucky enough to have.
- institute environmentally friendly animal wastes management.
- fence any livestock away from streambanks.
- use cover crops between plant rows to soak up excess fertilizer.
- help control erosion by using cover crops to stabilize the soil during winter rains;
- screen any irrigation intakes.

Farmers and Ranchers

- use farming practices that reduce runoff and soil erosion.
- screen irrigation diversions
- exclude livestock from the riparian areas and provide off-stream water sources.
- manage your uplands to promote watershed health.

Foresters

- adopt “best management practices” (BMPs) to protect soil and water.
- leave broad riparian buffers.
- reduce soil compaction and minimize road erosion.

Shoreline/Streamside Property Owners

- keep much of your land undeveloped and preserve stream buffers.
- preserve existing trees and landscape with native plants to help prevent erosion.
- whenever possible, use porous surfaces for driveways, patios, and walkways.
- if you have a septic system, don’t use a garbage disposal (it will add grease and solids to the system and shorten its life).
- divert roof drains and stormwater runoff away from your drainfield
- pump, maintain, and inspect your septic system at least once every 2 to 3 years.
- maintain fish-friendly culverts to encourage fish passage.
- eliminate invasive species such as Spartina and Scotch broom.
- don’t remove large, woody debris from your stream.
- keep vehicles and bicycles off stream banks and out of streams.

Recreational Stewardship

Water Sport Enthusiasts and Boaters

Our miles of inland waterways, navigable rivers, and accessible lakes make water sports and recreational boating favorite pastimes for residents and visitors. But, each year, boats discharge nearly half a million tons of garbage into U.S. waters. Did you know that using a 2-stroke jet ski for 1 hour is equivalent to driving a new car 70,000 miles? Non-native species of marine life can be carried from one body of water to another on boat hulls and in bilge water.

You can help by: maintaining your boat regularly, fixing hoses and connections before they leak oil or gas into the water; doing repairs, pressure washing and painting in dry dock when possible to keep paint chips out of the water; never discharging sewage into waters; taking measures to prevent the water-born introduction of exotic species; and kayaking, rowing, or sailing in preference to powerboating or jet skiing.

Campers, Hikers, and Trailriders

As our population increases and our cities and suburbs encroach on rural lands and wild places, campgrounds become more crowded, hikers and trailriders compete for use of limited trails, and environmental quality declines. The spawning beds of salmon-bearing streams are especially vulnerable habitat.

You can help by: staying on designated trails; not disturbing plants, shrubs, or trees, especially along streambanks; using biodegradable soap and rinsing dishes away from streams and lakes; packing your trash home for later disposal; and keeping your vehicles, horses, and pets out of streams and lakes.

Getting Actively Involved

WDFW Regional Fisheries Enhancement Groups

The Regional Fisheries Enhancement Group Program was created in 1990 as a means of including citizens in salmon enhancement efforts. Currently, twelve non-profit groups of volunteers cooperate with WDFW to improve salmon resources throughout the state.

Each group oversees a specific geographic region based on watersheds. Within their area, group members research and propose various projects, such as habitat improvement, salmon production, or research activities. Projects are reviewed by WDFW staff before going to the Citizens Advisory Board for funding recommendations. The Citizens Advisory Board is a nine-member panel of sport, commercial, tribal, and at-large members appointed by the director to serve a three year term.

Regional Fisheries Enhancement Group Contact List

REGION 1 - Nooksack Salmon Enhancement
Wendy Scherrer
PO Box 2535
Bellingham WA 98227-2535
Office: (360) 715-0283 FAX: (360) 715-0282
e-mail: nsea@nas.com

REGION 2 - Skagit River RFEG
Lucy Applegate/Allison Studley
PO Box 2497, 407 Main St #212
Mt Vernon WA 98273
Office: (360) 336-0172 FAX: (360) 336-0701
e-mail: skgtfish@pacificrim.net

REGION 3 - Stilly-Snohomish FETF
Dave Ward/Paul Rentner /Kip Killebrew
PO Box 5006
Everett WA 98206
Office: (425) 252-6686 FAX: (425) 259-6873
e-mail: prentner@gte.net
e-mail: ssfetf@eskimo.com

REGION 4 - Mid-Sound RFEG
Troy Fields
7400 Sand Point Way NE, Bldg 30 Rm 202
Seattle WA 98115
Office: (206) 529-9467
FAX: (206) 529-9468
e-mail: troymsf@nwlink.com

REGION 9 - Chehalis Basin FTF

REGION 5 - South Puget Sound SEG
Todd Alsbury/Sally Hicks
8315 Phillips Road SW
Lakewood WA 98498
Office: (253) 984-0431 FAX: (253) 984-0436
e-mail: spsseg@uswest.net

REGION 6 - Hood Canal SEG
Eileen Palmer/Al Adams
PO Box 2169
Belfair WA 98528
Office: (360) 275-3575 FAX: (360) 275-0648
e-mail: hcseg@hctc.com

REGION 7 - N Olympic Salmon Coalition
Paula Mackrow/Greg Swartz
PO Box 699
Port Townsend WA 98368
Office: (360) 379-8051 FAX: (360) 385-7269
e-mail: nosc@olympus.net

REGION 8 - Pacific Salmon Coalition
Carl Chastain
PO Box 2527
Forks WA 98331
Office and FAX: (360) 374-8873
e-mail: carlc@olypen.com

REGION 11 - Lower Columbia River FEG

Dave Hamilton / Jan Anderson
2109 Sumner Ave #202
Aberdeen WA 98520
Office & FAX: (360) 533-1766
e-mail: hamilton@techline.com

REGION 10 - Willapa RFEG
Ron Craig/Tami McMullen
PO Box 46
South Bend WA 98586-0046
Ron: (360) 875-6402 FAX: (360) 875-5802
Tami: (360) 875-8639 FAX: (360) 875-6626
e-mail: ron&leta@willapabay.org

Jim Stolarzyk
PO Box 61723
Vancouver WA 98666
Work: (360) 425-1880
Home: (360) 944-9544
e-mail: lcfeg@pacifier.com

REGION 12 - Eastern Washington FEG
Kim Hubner/Glenn Miller
PO Box 9111
Yakima WA 98909
Kim: (509) 965-1102
Glenn: (509) 697-3468 FAX: (509) 698-5716
e-mail: fishwa@aol.com

A seven-member Citizen Advisory Board (CAB) serves the Regional Fisheries Enhancement Groups. Current CAB members are:

Robert Anderson, Lynnwood
Lanny Carpenter, Olympia
Diane Jones, Hansville

Terry Wright, Olympia
David Beatty, Bellingham
Jason Scott, Spokane

Mike Hirko, Kelso
Bob Lake, Grayland

Salmon Recovery Lead Entities

During the 1998 Legislative session, ESHB 2496 was adopted to recover salmon in Washington State. Habitat restoration was the primary focus of the Salmon Recovery Planning Act (SRPA). This Act created a comprehensive and coordinated system to help repair salmon habitat. Lead Entities (LE) are public or non-profit bodies jointly designated by cities, counties, and tribes within a defined geographic area, which identify and prioritize salmon habitat restoration projects by watershed or watershed group. (See the WRIA list and map on page 21.) LE committees create Habitat Work Schedules which ensure habitat projects are strategic from a comprehensive perspective, appropriate within a watershed context, and sequenced in a logical manner. The prioritized lists are then submitted to the Salmon Recovery Funding Board (SRFB) for consideration.

Lead Entities provide citizen-based, locally driven, project identification and prioritization for the SRFB, establishing important landowner and stakeholder relationships, and forging the critical links to salmon habitat restoration on private lands. If you have a good idea for a salmon habitat restoration or salmon recovery project, contact your local Lead Entity.

Current Salmon Recovery Lead Entities Contact List

Asotin County Conservation District

Contact: Brad Johnson
Tel: (509) 758-8012

Chelan County Commissioners

Contact: Mike Kaputa
Tel: (509) 664-5225

Grays Harbor County

Contact: Lee Hansmann
Tel: (360) 249-4222

Hood Canal Coordinating Council

Contact: Jay Watson
Tel: (360) 434-2763

Island County Public Works

Contact: Julie Buktenica
Tel: (360) 679-7331

King County

Contact: John Lombard
Tel: (206) 296-8051

King County Water & Land Res Div

Contact: Doug Osterman
Tel: (206) 296-8096

Kitsap County

Contact: Keith Folkerts
Tel: (360) 337-7098

Klickitat County

Contact: Lori Zoller
Tel: (509) 369-2437

Lower Columbia Fish Recovery Board

Contact: Jeff Breckel
Tel: (360) 414-4177

Mason Conservation District

Contact: Bill Young
Tel: (360) 427-9436
Fax: (360) 427-4396

Nisqually River Salmon Recovery

Contact: David Troutt
Tel: (360) 438-8687
Fax: (360) 438-8742

North Olympic Peninsula

Contact: John Cambalik
Tel: (360) 417-2430

Okanogan County/Colville Tribe

Contacts: Dennis Beich/Hilary Lyman
Tel: (509) 422-7139/(509) 996-2486

Pacific County

Contact: Bryan Harrison
Tel: (360) 875-9356

Pierce County

Contact: Tim Ramsaur
Tel: (253) 798-2725

Quinault Indian Nation - Fisheries Div

Contact: John Sims
Tel: (360) 276-8215 ext 347

Skagit Watershed Council

Contact: Shirley Solomon
Tel: (360) 445-2136
Fax: (360) 445-2704

Snohomish County/Stillaguamish Tribe

Contact: Aaron Waller/Pat Stevenson
Tel: (425) 388-3464/(425) 435-2755

Thurston Co Conservation District

Contact: Scott Brummer
Tel: (360) 754-3588 ext 103
Fax: (360) 236-0941

Whatcom County

Contact: George Boggs
Tel: (360) 354-2035

WDFW WATERSHED STEWARDSHIP TEAM

Staff assignments for technical assistance provided to Lead Entities and RFEGs

The primary purpose of each Watershed Stewardship Team biologist is to serve as a technical expert and as the agency liaison to lead entities, their committees, and RFEGs engaged in salmonid recovery/protection activities. The WST biologists will provide technical expertise themselves, and they will facilitate involvement of other agency staff, particularly those in the Habitat and Fish programs, needed to make Lead Entities and RFEGs successful.

<u>Region</u>	<u>WDFW Staff</u>	<u>Station</u>	<u>Lead Entity</u>	<u>RFEG</u>
1	Steve Martin 509-382-3029 martiswm@dfw.wa.gov	Dayton district office	Asotin	new Asotin RFEG
	Sandra Lembcke 509-456-4082 lembcsrl@dfw.wa.gov	Colville area office	NE	
2	Connie Iten 509-826-3123 itencri@dfw.wa.gov	Omak district office	Chelan Okanogan	new Chelan/Okan. RFEG
3	Bill Weiler 509-457-9310 weilewjw@dfw.wa.gov	Yakima regional office	Klickitat Yakima	EW RFEG
4	Kirk Lakey 425-649-7088 lakeykal@dfw.wa.gov	Bellevue district office	King (8) King (9)	Stilly-Sno Mid-Sound
	Steve Seymour 360-676-6707 x 50603 seymourfish@home.com	La Conner district office	Whatcom	NSEA Skagit
	Mike Chamblin 425-379-2304 chambmc@dfw.wa.gov	Mill Creek regional office	Snohomish	
	Rich Johnson 360-466-4345 johnsrj@dfw.wa.gov	La Conner district office	SWC (Skagit) Island	
5	Donna Hale 360-906-6738 haledhh@dfw.wa.gov	Vancouver regional office	LCFRB	LCR RFEG
6	Craig Olds 360-902-2540 oldscao@dfw.wa.gov	Olympia headquarters		
	Chad Stussy 360-249-1224 stusscns@dfw.wa.gov	Montesano regional office	Pacific Quinault Chehalis Basin	Willapa Pacific Coast CBFTF
	Ginna Correa 360-437-4154 corregc@dfw.wa.gov	Port Townsend	Kitsap HCCC Mason	NOSC Hood Canal
	Barb McIntosh 360-902-2608 mcintblm@dfw.wa.gov	Olympia headquarters	Nisqually Thurston	

	Randy Johnson 360-417-3301 johnsraj@dfw.wa.gov	Port Angeles	NOPE	
	Keith Keown 360-902-2409 keownkk@dfw.wa.gov	Olympia headquarters	Pierce	
	Kristy Lynett 360-902-2237 lynetsl@dfw.wa.gov	Olympia headquarters		S. Sound RFEG

- Stream Teams**
Many communities support Stream Teams through their local municipal or county government. These organizations are very knowledgeable about water, vegetation, and environmental conditions within the geographic areas they serve. Many sponsor training classes for teachers and volunteers and organize projects to restore damaged habitat. For information, contact your local city or county government.
- Local Public Utility or Conservation District**
Your local public utility or conservation district is another excellent source for information about your watershed. They frequently provide educational materials to rate payers and are very active in stream restoration projects. For information about Public Utility Districts, call the Washington PUD Association at (206) 682-3110. To find a Conservation District in your area, call the Conservation Commission at (360) 407-6200 or visit their website at:
<http://www.conserver.org/wcc.html>
- WSU Cooperative Extension**
Your local extension agent is a valuable consultant with access to information and resources you may need. To locate a Cooperative Extension Office in your area, call Washington State University at (509) 335-2811 or visit the website at: <http://ext.wsu.edu>
- NatureMapping**
NatureMapping Program supports volunteers who monitor wildlife and habitat data to create local "biodiversity report cards." Their website, <http://www.fish.washington.edu/naturemapping>, offers an on-line database where volunteer monitors and restoration project participants can report data and potential data users can view it. The NatureMapping Program is a joint effort of the U.S. Geological Survey-Biological Resources Division, the University of Washington, Washington Cooperative Fish and Wildlife Research Unit, and the Washington Department of Fish and Wildlife. To learn more or join, contact Karen Dvornich at the University of Washington, (206) 616-2031 or Margaret Tudor, WDFW, at (360) 902-8309.
- Washington State Parks**
Park projects include cleanups, environmental and interpretive assistance, special services and general maintenance. Contact your nearby State Park for current opportunities, or call the Volunteer Program Coordinator at (360) 902-8582.
- Forest Stewardship Program**

Technical and financial assistance is available to forest owners for forestry, fish, and wildlife projects. Contact DNR at 1-800-527-3305 or visit: <http://www.wa.gov/dnr>

- **Watch Over Washington**

Watch Over Washington is a statewide information network for volunteers who monitor various aspects of their environment. The organization's goal is to help people work together within their watersheds to provide a local source of reliable, consistent information on environmental conditions. A list of more than 200 monitoring group leaders is available on the website, by county or WRIA. This is a program of the Governor's Council on Environmental Education and the Department of Ecology. Visit this site at: <http://www.wa.gov/ecology/wq/wow>

- **Adopt-A-Highway**

More than 1,700 civic groups pick up litter and remove Scotch broom from Washington highways. Contact (360) 705-7865 to join a group near your home or to start your own group.

- **Salmon Web**

Salmon Web is a program which provides educational materials about watershed health and salmon habitat. Salmon Web has an interactive web page with biological monitoring protocols and data, guidelines (protocols) for monitoring, and a video showing how and why to conduct monitoring. Salmon Web's data collection is based on Dr. James Karr's Index of Biotic Integrity (IBI)> This site can be accessed at:

<http://www.salmonweb.org/>

- **Puget Sound Water Quality Action Team**

Puget Sound Water Quality Action Team provides funds through its Public Involvement and Education (PIE) program, to local governments, tribes, businesses, schools, and civic groups working on water pollution prevention and habitat restoration. To find out who is working in your community or more about funding, contact the PIE contracts administrator at (360) 407-7300 or 1-800-54SOUND

- **People for Salmon**

People for Salmon works to link communities and people back to salmon recovery programs and resources provided by state and local governments and the private sector. For information on volunteer opportunities, call (425) 831-2425.

- **Washington Sea Grant**

Washington Sea Grant is part of a national network of 29 Sea Grant colleges administered by the National Oceanic and Atmospheric Administration (NOAA). The program identifies marine resource issues at the community level and brings the scientific expertise of university researchers to bear in addressing them. At the Washington Sea Grant web-site, www.wsg.washington.edu/, you'll find brief descriptions of current and continuing research and outreach projects. Research topics include sustainable fisheries and living marine resources, aquaculture, marine policy, and estuarine studies.

Creating Your Own Volunteer Cooperative Project

Do Some Preliminary Research

There are many on-going projects and studies which will help you to determine what you might do and where, when, and how you can contribute to salmon recovery.

The Watershed Recovery Inventory Project

The Watershed Recovery Inventory Project (WRIP) was created to develop a comprehensive inventory of watershed restoration projects and watershed information needed to deal with the issues presented by salmonid listings under the Endangered Species Act (ESA). Eight areas were identified within the WRIP to identify specific information which can aid salmon recovery:

1. Existing watershed assessments
2. Restoration projects
3. Watershed monitoring projects
4. Fish passage impediments
5. Water quality
6. Stream flow problems
7. Mass-wasting problems
8. Fish supplementation

Many pieces of information have been compiled by various groups for various reasons. The WRIP identified sources of information so that the pieces could be brought together to support a watershed approach to salmon recovery. An initial project report was completed in October 1997. This inventory is seen as a “living” document that is continuously updated as new information is acquired and as habitat improvement projects are completed. You can access the report, maps, and spreadsheets at: <http://www.wa.gov/wdfw/hab/wrip/wrip.htm>

SASSI, SaSI, and SSHIAP

In 1995, as part of the Wild Stock Restoration Initiative, state and tribal governments conducted the Washington State Salmon and Steelhead Stock Inventory (SASSI). The SASSI process identified distinct spawning populations (stocks) and described their status based on available information. More detailed material on individual stocks was compiled in regional SASSI appendices. With the need to collect data on other salmonids, SASSI became SaSI for Salmonid Stock Inventory. SASSI/SaSI, however, did not assemble data or draw conclusions on habitat data and related issues.

In order for the State and Tribes to take constructive action to reverse stock declines and achieve recovery, it was critical that the role of habitat loss and impairment in the decline of salmon and steelhead populations be well understood and documented. The Salmon and Steelhead Habitat Inventory and Assessment Project (SSHIAP) was begun to document habitat conditions, assess the role of habitat degradation and loss in the status of salmon and steelhead stocks, develop stock or watershed/basin specific strategies for habitat protection and restoration, and prepare a

cooperative strategy to obtain funding to implement habitat restoration/protection strategies. SSHIAP currently covers WRIAs 1-23 and is being expanded to WRIAs 24-62 and estuarine and nearshore marine waters. SSHIAP data can be accessed on-line at:
<http://www.nwifc.wa.gov/sshiap>.

Ecosystems Diagnosis and Treatment (EDT)

Ecosystems Diagnosis and Treatment (EDT) is a way of analyzing environmental conditions and predicting their effects on fish and wildlife populations. EDT does three things: 1) it evaluates current habitat conditions, 2) it examines changes in these habitat conditions that are likely to result from different management actions, and 3) it predicts how different species will respond to these changes in habitat conditions.

EDT can be used to analyze existing habitat conditions in a watershed and to predict the amount of increase or decrease in numbers of salmon as these habitat conditions are changed. If several restoration activities are contemplated in a particular watershed, EDT can provide a way to quantify the probable results of these activities in terms of numbers of fish that would likely be produced. WDFW and tribal co-managers are conducting a “coarse-scale” assessment of EDT in Puget Sound and the lower Columbia River. This assessment will determine the feasibility of using EDT as a tool in salmon recovery..

StreamNet

StreamNet is a cooperative venture of the Northwest’s fish and wildlife agencies and the tribes. This website focuses on the Columbia River basin and provides on-line data, fish facts, electronic maps, a library, and links to other Internet resources related to aquatic resource conservation and restoration. The site address is: <http://www.streamnet.org>

WDFW Volunteer Cooperative Projects

Many cooperative projects to benefit fish and wildlife are supported by WDFW using Aquatic Lands Enhancement Account (ALEA) funding. These projects fall into five main categories.

- **Habitat Development Projects** - These projects restore and/or preserve the life sustaining conditions for fish and wildlife. Typical activities may include plantings to produce cover, food plots, streambank stabilization, passages for anadromous fish, fencing to keep livestock away from streams, and others. These projects can occur on private or publicly owned lands.
- **Research Projects** - These projects are fish and wildlife research activities with obvious public benefits and products which can be of immediate use to the general public.
- **Facility Development Projects** - These projects improve or provide better access to fish and wildlife for public recreational use. Projects may also include the creation of disability access to fish and wildlife recreation.
- **Artificial Production Projects** - These projects propagate fish for recreational angling access. A few projects have included the propagation of threatened or endangered fish

and wildlife species by volunteers with the goal of producing self-sustaining populations of a particular species.

- **Education Projects** - These projects increase appreciation for the importance of fish and wildlife resources. Interpretive materials, signs, and publications for public distribution or display which impart an understanding of the natural world and foster enduring conservation ethics are significant elements of volunteer education projects.

To pursue an ALEA grant, sponsors should obtain and complete an application, paying particular attention to process deadlines. Proposed projects receive a 60 day internal review, evaluation, and rating by WDFW staff. Approved projects receive grants contingent on funding availability. For more information, call the Cooperative Projects Coordinator at (360) 902-2806.

Permitting

All fish and shellfish have special habitat requirements related to water quality and quantity (including temperature) and to the physical features of the stream or body of water in which they live. Each species has adapted to its unique requirements over an extended evolutionary period. The degradation of any one of the elements of their required habitat results in reduced numbers.

Construction activity in or near the water has the potential to kill fish or shellfish directly. More importantly, this activity can also alter the habitat that fish and shellfish require continuing to cause lost production for as long as the habitat remains altered. Major construction projects individually have a large potential for damage, but **more habitat is lost by the cumulative effects of many smaller projects, each with a minimal level of impact.**

The law requires that any person, organization, or government agency wishing to conduct any construction activity in or near state waters must do so under the terms of a permit (called a Hydraulic Project Approval or HPA) issued by WDFW. Projects are not exempted from permits because they are sponsored by WDFW. Applicants should check with the appropriate state, county, or city authorities to determine what permits may be needed. Certain permits, such as Hydraulic Project Approvals (HPAs) and Scientific Collection Permits issued by the department may be needed for cooperative projects.

The major types of activities that require an HPA include: streambank protection; bridge, pier, and dock construction; pile driving; channel change or realignment; conduit (pipeline) crossing; culvert installation; dredging; gravel removal; pond construction; placement of outfall structures; log jam or debris removal; mineral prospecting; bulkhead construction; fills; boat launches; artificial reefs; and utility line placement.

Any construction within the ordinary high water line in freshwater or saltwater requires an HPA, even if it's outside the water at the time it's undertaken. The Joint Aquatic Resource Permit Application (JARPA) is used to apply for an HPA. It combines seven applications for federal, state, and local permits. The form is also used for Water Quality Certifications or Modifications from the Department of Ecology (DOE), Aquatic Resource Use

authorizations from the Department of Natural Resources (DNR), Army Corps of Engineers permits, and Shore- line Management Act permits from participating local, city, or county agencies. Because not all local government agencies use JARPA, applicants should contact their local planning office for direction. JARPA forms are available from any WDFW office, from DOE, Army Corps of Engineers, or participating local government offices. DOE's **Permit Assistance Center at (360) 407-7037** or toll-free at **1-800-917-0043** can tell you which environmental permits are needed for your proposed activity. Their website is located at <http://www.wa.gov/ecology/sea/pac> .

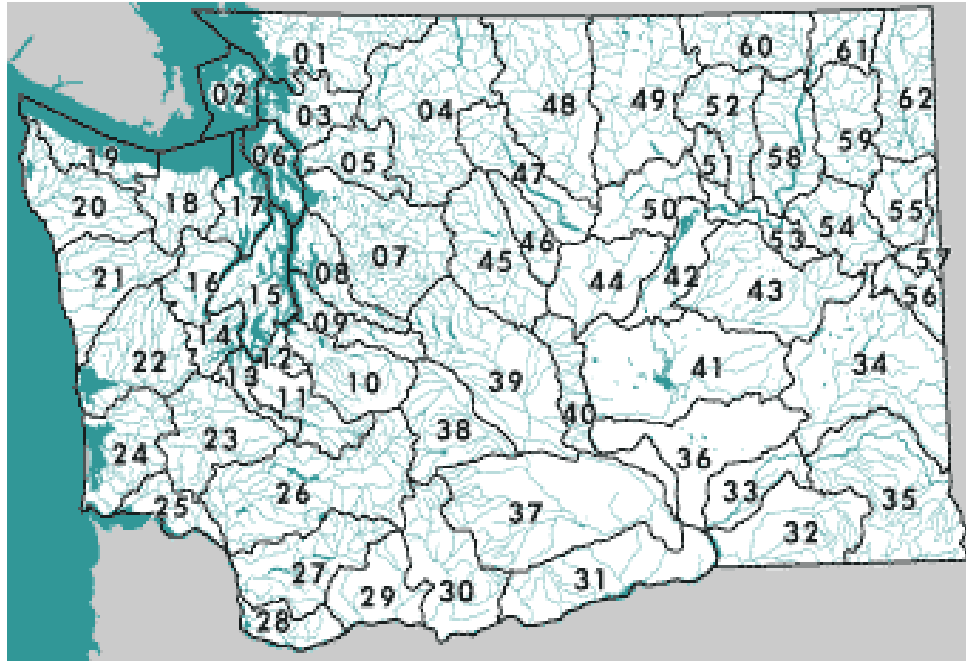
All HPA applications are assigned to a WDFW Area Habitat Biologist. In most cases, the biologist will visit the project site and meet with the applicant to point out fish needs and how the project could affect that habitat. Most applications are processed within 30 days of receipt of a complete application and compliance with the State Environmental Policy Act (SEPA.) The law provides for emergency situations when, due to weather or stream flow, there is **immediate** threat to property or life. In such cases, WDFW can give immediate verbal approval for work necessary to alleviate the emergency. Between 8 am and 5 pm, Monday through Friday, contact the nearest WDFW office. During non-working hours, a **24-hour emergency hotline at (360) 902-2537** is available.

For information on Upstream Fish Passage At Dams and Culverts; Design Guidance/Standards; Barrier Assessment/Prioritization; Fish Passage Regulation, Research, and Training, please visit the WDFW web-site at: <http://www.wa.gov/wdfw/hab/engineer/habeng.htm>

WDFW Cooperative Extension Volunteer Project Planning Checklist:

- ☐ Have you done a needs assessment?
- ☐ What do you propose to do?
- ☐ Where is your proposed project located? Is it in a priority area for ESA listings?
- ☐ Who owns the property? Do you have written permission?
- ☐ Have adjacent property owners been notified?
- ☐ Have you applied for approvals from the appropriate jurisdictions?
- ☐ What species will be affected?
- ☐ Are there effects on related species, plants, or animals? (Priority Habitat & Species)
- ☐ Have you done a limiting factors analysis?
- ☐ How does your proposed project fit with other projects in your watershed?
- ☐ Have you contacted the Salmon Recovery Lead Entity to determine priority project activities?
- ☐ Have you researched available grants and partners in your area?
- ☐ How will the project be funded? Are in-kind contributions available?
- ☐ Who will do the work?
- ☐ If you plan to use volunteers, how will they be recruited, trained, managed, and recognized?
- ☐ Will you need equipment, tools, or technical assistance?
- ☐ If you need an HPA, have you contacted WDFW?
- ☐ Do you need SEPA approval? (Contact your county)
- ☐ How will the project's impact be monitored, measured, and evaluated?

Map of Watershed Resource Inventory Areas (WRIAs)



List of Watershed Resource Inventory Areas (WRIAs)

01	Nooksack	32	Walla Walla
02	San Juan	33	Lower Snake
03	Lower Skagit-Samish	34	Palouse
04	Upper Skagit	35	Middle Snake
05	Stillaguamish	36	Esquatzel Coulee
06	Island	37	Lower Yakima
07	Snohomish	38	Naches
08	Cedar-Sammamish	39	Upper Yakima
09	Duwamish-Green	40	Alkali-Squilchuck
10	Puyallup-White	41	Lower Crab
11	Nisqually	42	Grand Coulee
12	Chambers-Clover	43	Upper Crab-Wilson
13	Deschutes	44	Moses Coulee
14	Kennedy-Goldborough	45	Wenatchee
15	Kitsap	46	Entiat
16	Skokomish-Dosewallips	47	Chelan
17	Quilcene-Snow	48	Methow
18	Elwah-Dungeness	49	Okanogan
19	Lyre-Hoko	50	Foster
20	Soleduck-Hoh	51	Nespelem
21	Queets-Quinault	52	Sanpoil
22	Lower Chehalis	53	Lower Lake Roosevelt
23	Upper Chehalis	54	Lower Spokane
24	Willapa	55	Little Spokane
25	Grays-Elokoman	56	Hangman
26	Cowlitz	57	Middle Spokane
27	Lewis	58	Middle Lake Roosevelt
28	Salmon-Washougal	59	Colville
29	Wind-White Salmon	60	Kettle
30	Klickitat	61	Upper Lake Roosevelt
31	Rock-Glade	62	Pend Oreille

Internet Resources

Adopt-a-Stream	www.streamkeeper.org/
Adopt Your Watershed	http://www.epa.gov/surf/adopt/
American Heritage Rivers	http://yosemite.epa.gov/water/surfah.nsf/data?
American Rivers	www.amrivers.org/
Cascadia Planet	www.tnews.com/
Center for Watershed Protection	www.pipeline.com/~mrrunoff/
Chehalis River Council	www.crcwater.org
Columbia Basin Framework	http://www.nwframework.org/
Department of Ecology, Shorelands	www.wa.gov/ecology/sea/shorelan.html
Environmental Protection Agency	http://www.epa.gov/surf2/states/
For the sake of the Salmon	www.4sos.org/
Friends of Issaquah Salmon Hatchery	www.issaquahfish.org
Governor's Salmon Recovery Office	http://www.governor.wa.gov/esa/
Hood Canal Wetlands	http://hood.hctc.com/~hcwater/
Izak Walton League of America	http://www.iwla.org/
King County Lakes Monitoring	http://splash.metrokc.gov/wlr/waterres/lakes/
King County's Salmon Recovery Plan	http://www.metrokc.gov/exec/esa/
National Library for the Environment	http://www.cnle.org/nle/
National Watershed Focus	http://purdue.edu/KYW/Focus/Apr99.html
NatureMapping	www.fish.washington.edu/naturemapping/
NMFS Restoration Center	www.nmfs.gov/habitat/restoration/
NMFS SalmonESA web site	www.nwr.noaa.gov/1salmon/salmesa/index.htm
Nooksack Salmon Enhancement	www.n-sea.org
People for Puget Sound	http://www.pugetsound.org/
People for Salmon	www.peopleforsalmon.org
Puget Soundkeeper Alliance	http://www.halcyon.com/pskeeper/
Puget Sound Action Team	www.wa.gov/puget_sound/
Salmon Recovery Funding Board	http://www.wa.gov/iac/salmonmain.html
Salmon Web	http://www.salmonweb.org
SSHIAP	http://www.nwifc.wa.gov/sshiap
Stream Corridor Restoration	www.usda.gov/stream_restoration/
StreamNet	http://www.streamnet.org/
TFW Ambient Monitoring Program	http://bulltrout.nwifc.wa.gov
Tri-county Salmon Information Ctr	http://www.salmon.gen.wa.us/
USFWS	www.fws.gov/
USGS	http://wa.water.usgs.gov/
Washington Environmental Council	http://www.greenwec.org/
Washington Sea Grant	http://www.wsg.washington.edu/
Watch Over Washington	http://www.wa.gov/ecology/wq/wow/
The Watershed Management Council	http://watershed.org/wmchome/
WDFW "ESA & Salmon Recovery"	http://www.wa.gov/wdfw/depinfo/present/esa/index.htm
WDFW Pacific Salmon Treaty facts	http://www.wa.gov/wdfw/factshta/pst.htm
WDFW Salmon Recovery page	http://www.wa.gov/wdfw/recovery.htm
WDFW Salmon Self-assessment	http://www.wa.gov/wdfw/outreach/salmon/selfasmt/selfasmt.htm

General Contact Information

Governor's Salmon Recovery Office

(360) 902-2231

Website: <http://www.governor.wa.gov/esa>

Washington Department of Fish and Wildlife (WDFW)

(360) 902-2200

Website: <http://www.wa.gov/wdfw>

Department of Ecology

(360) 407-6000

In an Environmental Emergency call Ecology 24-hour Emergency Spill Response: (360) 407-6300

For Information on Disposal of Pesticides, Herbicides, and other Hazardous Wastes call:

Ecology Hazardous Waste Hotline: 1-800-RECYCLE

Permit Assistance Center: 1-800-917-0043

Washington Toxics Coalition

1-800-844-SAFE

Department of Transportation (DOT)

(360) 705-7000

Washington Department of Natural Resources Forest Stewardship Program

(Technical and Financial assistance to forest owners for forestry, fish and wildlife): 1-800-527-3305

Website: <http://www.wa.gov/dnr>

For Information on local City and County Sewer and Water Districts call:

(253) 872-4063

For Information on Public Utility Districts in your area call:

Washington PUD Association: (206) 682-3110

To Find a Conservation District in your area call:

Conservation Commission: (360) 407-6200

Website: <http://www.conserver.org/wcc.html>

To Find a Cooperative Extension Office in your area call:

Washington State University: (509) 335-2811

Website: <http://ext.wsu.edu>

For Landscape Information call:

Washington Native Plant Society: 1-888-288-8022

For Information on Growth Management Planning in your area call: (360) 753-2222

Some Salmon-Friendly Recipes for Daily Living

Salmon-Friendly Fertilizer

Mix in a 20-gallon, hose-end sprayer. Use every three weeks in the morning within two days of mowing.

- ☐ 1 can beer
- ☐ 1 cup ammonia
- ☐ ½ cup dish soap (no chlorine bleach or phosphorus)
- ☐ ½ cup lawn food
- ☐ ½ cup molasses or corn syrup

Salmon-Friendly Weed Control

Mix in a hand pump sprayer. Use only on dry days. Spray only on weeds.

- ☐ 1 cup dish soap (phosphorus free)
- ☐ 1 cup ammonia
- ☐ 4 Tablespoons instant tea

Salmon-Friendly Insect Control

Mix in a 20-gallon, hose-end sprayer. Best when applied after 7 p.m. Use on all plants.

- ☐ 1 cup dish soap (phosphorus free)
- ☐ ½ cup chewing tobacco tea (make by brewing 3 fingers per gallon of water)
- ☐ 2 Tablespoons witch hazel
- ☐ 4 Tablespoons instant tea

Salmon-Friendly Compost Starter

For quick composting with minimal odor, start with a mixture of browns (dried up plant material) and greens (kitchen scraps and grass). Never add meat scraps or bones. Do add eggshells, paper, coffee grounds and filters.

- ☐ 3 parts dry leaves (browns)
- ☐ 2 parts fresh garden weeds and grass clippings
- ☐ 1 part food scraps (greens)
- ☐ 2 parts water (or beer) added periodically

Salmon-Friendly All-Purpose Cleaner

- ☐ 1 quart warm water
- ☐ 1 teaspoon liquid soap
- ☐ 1 teaspoon borax
- ☐ 1/4 cup vinegar

Salmon-Friendly Mothballs

Use cedar chips instead!

Salmon-Friendly Chrome Cleaner

Apple cider vinegar to clean, baby oil to polish.

Salmon-Friendly Pressure Washing Solution

Try water first: Water pressure alone often removes the dirt and grime.

- ☐ 2 cups mild laundry detergent
- ☐ ½ cup vinegar
- ☐ 1/4 cup lemon juice

Salmon-Friendly Wood Polish

Use almond or olive oil on interior wood.